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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,948	08/18/2005	Daniel Matter	1-16941	3506

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10/12/2007

EXAMINER

JAGAN, MIRELLYS

ART UNIT	PAPER NUMBER
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2855

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,948

Applicant(s)

MATTER ET AL.

Examiner

Mirellys Jagan

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,9 and 11 is/are rejected.
- 7) ☒ Claim(s) 3,6-8,10 and 12-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/21/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1-15 are objected to because of the following informalities:

Claim 1 is not clear since it states that the signal is output as an energy value signal (S_E), but fails to claim that the sensor signal is also output as a mass flow signal, e.g., S_M . Therefore, the claims appear to state that the energy value signal is both the energy value signal and the mass flow signal.

In claim 3, there is lack of antecedent basis in the claim for “the unit”.

In claim 4, it is not clear if the tolerance applies to nitrogen, oxygen, or air, or just the carbon dioxide.

In claim 7, it is not clear what is being stored intermediately and used as a start value.

In claim 12, it is not clear how the gas quality sensor generates the discrimination signal, e.g., is it using a signal from the thermal flow sensor? Furthermore, the claim appears to state that there are two devices for determining gas composition, e.g., the thermal flow sensor and the gas quality sensor.

Claim 14 appears to state that there are two gas quality sensors, e.g., the thermal flow sensor and the gas quality sensor of base claim 12.

Claims 2, 5, 6, 8-11, 13, and 15 are objected to for being dependent on an objected base claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,345,463 to Wilson et al [hereinafter Wilson].

Wilson discloses a method for measuring gas consumption by means of a gas meter (11), wherein sensor signals that are proportional to a flow rate of the gas are determined by the gas meter by means of a thermal flow sensor (16), and the sensor signals are output as energy value signals (308) based on a calibration of the gas meter as an energy meter, wherein:

a gas type is determined by the gas meter (chromatograph 346 of the gas meter) insofar as a non-combustible gas mixture is differentiated from a combustible gas mixture (see column 3, lines 50-53); and

the gas meter is operated with a calibration in mass or standard volume units (304) in the presence of a non-combustible gas mixture, and the gas meter is operated with a calibration in energy units (308) in the presence of a combustible gas mixture, i.e., the gas meter will not output in energy units if there is a non-combustible mixture since this mixture will not have measurable energy to output;

wherein at least one gas type-dependent parameter of the gas mixture is determined by means of a thermal gas quality sensor, and the gas mixture is identified as combustible or non-combustible by comparison with known values of the parameter for known gases (see column 2,

Art Unit: 2859

lines 49-64) (see abstract; figure 3; column 1, lines 58-62; column 2, lines 16-21 and 27-41; and column 6, lines 15-24 and 53-57).

4. Claims 1, 2, 9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0373965 to Higashi.

Higashi discloses a method for measuring gas consumption by means of a gas meter (10), wherein sensor signals that are proportional to a flow rate of the gas are determined by the gas meter by means of a thermal flow sensor (18), and the sensor signals are output as energy value signals (page 4, lines 45-50, 54-56) based on a calibration of the gas meter as an energy meter, wherein:

a gas type is determined by the gas meter (21a of the gas meter) insofar as a non-combustible gas mixture is differentiated from a combustible gas mixture (see page 4, lines 6-8, 21-23); and

the gas meter is operated with a calibration in mass or standard volume units (volumetric flow) in the presence of a non-combustible gas mixture, and the gas meter is operated with a calibration in energy units (energy value) in the presence of a combustible gas mixture, i.e., the gas meter will not output in energy units if there is a non-combustible mixture since this mixture will not have measurable energy to output;

wherein at least one gas type-dependent parameter of the gas mixture is determined by means of a thermal gas quality sensor (24), and the gas mixture is identified as combustible or non-combustible by comparison with known values of the parameter for known gases; and by

Art Unit: 2859

means of display (26), it is displayed whether the gas meter is in contact with air or natural gas (see figure 1; page 4, lines 31-34).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashi.

Higashi discloses a method having all of the limitations of claims 4 and 5, as stated above in paragraph 4, and further discloses that the sensor determines a measured heat conductivity that is tested for correspondence to an absolute value of a heat conductivity value corresponding to carbon dioxide, wherein in the case of correspondence, the gas mixture is categorized as non-combustible and a signal output of the gas meter is operated with a scale which is calibrated in

Art Unit: 2859

mass or standard volume units, and in the case of non-correspondence, the gas mixture is categorized as combustible and a signal output of the gas meter is operated with a scale which is calibrated in energy units; and that a measured heat capacity is compared with a threshold value, wherein upon falling below the threshold value, the gas mixture is categorized as non-combustible and a signal output of the gas meter is operated with a scale which is calibrated in mass or standard volume units, and upon exceeding the threshold value, the gas mixture is categorized as combustible and a signal output of the gas meter is operated with a scale which is calibrated in energy units (see figures 2-5; page 4, lines 31-37).

Higashi does not disclose the conductivity value being 0.0168 W/mK for carbon dioxide, with a tolerance of $\pm 10\%$ being taken into account, or the heat capacity corresponding to an absolute value of 1300 J/kgK, with a tolerance of $\pm 10\%$ being taken into account.

However, the particular heat conductivity value and heat capacity claimed by applicant, absent any criticality, is only considered to be the optimum value of a heat conductivity value and heat capacity suggested by Higashi that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based on the desired accuracy, etc. and since it has been held that discovering an optimum value of a result-effective variable involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method disclosed by Higashi so as to make the heat conductivity value and heat capacity as claimed by applicant in order to provide the necessary values to satisfy the desired accuracy of the device.

Allowable Subject Matter

8. Claims 3, 6-8, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and amended to overcome the objections set forth in this Office action.

9. Claims 12-15 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

10. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or suggest the following in combination with the remaining limitations of the claims:

A method for measuring gas consumption by means of a gas meter, wherein:
the thermal flow sensor and the gas quality sensor comprise the same unit (see claim 3);
measuring intervals for determining sensor signals are chosen to be large in the presence of a non-combustible gas mixture, and are chosen to be small in the presence of a combustible gas mixture (see claim 6);

a consumed supply of gas energy is stored intermediately when switching the calibration to mass or standard volume units, and is used as start value when switching back to energy units (see claim 7);

the integrated flow rate is stored intermediately and in particular output and is used as a start value or is set back to zero as start value when switching back to mass or standard volume units (see claim 8); or

a sensor calibration curve is corrected with a signal conversion factor and with a heat value factor for a basic gas mixture (see claim 10).

A gas meter for measuring a gas consumption, wherein the gas meter has a thermal flow sensor that is also used to determine the gas composition of the gas mixture (see claim 12).

Response to Arguments

11. In response to applicant's argument that Wilson fails to show certain features of claim 1, it is noted that the features upon which applicant relies, i.e., the functions of determining component composition and flow rate being performed by one unit, are not recited in rejected claim 1. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, Applicant's arguments with respect to claim 12 are moot since claim 12 was not rejected over prior art.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following reference discloses determining the calorific value of a fluid:

U.S. Patent 6,279,380 to Van Wesenbeeck et al
U.S. Patent 5,201,581 to Vander Heyden et al
JP 62280617 to Ishikawa et al

13. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 6/21/07 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MJ
October 10, 2007

GAIL VERBITSKY
PRIMARY EXAMINER